

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

ASSURED GUARANTY MUNICIPAL CORP.,)
f/k/a FINANCIAL SECURITY ASSURANCE)
INC.)
)
Plaintiff,)
)
vs.) Civil Action 11-CIV-2375 (JSR)
)
FLAGSTAR BANK, FSB; FLAGSTAR)
CAPITAL MARKETS CORPORATION; and)
FLAGSTAR ABS, LLC)
)
Defendants.)

Declaration of Nelson R. Lipshutz, Ph.D.

1. I, Nelson R. Lipshutz, have been asked by counsel for Assured Guaranty Municipal Corp. (“AGM”) to develop random samples of loans originated, securitized and serviced by Flagstar, and to comment on the declaration of Brendan P. Burke made on behalf of defendants in the instant action.

I. QUALIFICATIONS

2. I am President of Regulatory Research Corporation. I specialize in the application of economics, statistics, and financial theory to legal and regulatory issues. I hold a Ph.D. in theoretical physics from the University of Chicago and an MBA in finance from the Wharton School of the University of Pennsylvania. I have served as an Assistant Professor of Physics at Duke University and as a lecturer in economics at Northeastern University. I have submitted expert reports and declarations to state and Federal courts and to various state insurance

departments. I have testified before state and Federal courts, before state legislatures, before state insurance departments, and before the International Trade Commission.

3. My qualifications are set forth in further detail in the professional biography attached to this declaration. My billing rate for this assignment is \$675 per hour. My work is being conducted pursuant to a written contract which specifies that my compensation is in no way dependent on the nature of my findings or the outcome of this case or of any related litigation or other proceeding. My contract further specifies that, if I am called upon to present reports or testimony, I will make full and complete disclosure of all of my relevant research results.

4. I have 39 years of experience in carrying out economic, financial, and statistical studies. These studies have involved the collection and analysis of data of various types, and have frequently required that I design statistical samples.

II. POPULATIONS SAMPLED

5. I was provided with data files containing information on the loans included in Flagstar Home Equity Loan Trust 2005-1 (“2005-1”) and in Flagstar Home Equity Loan Trust 2006-2 (“2006-2”). The data files consisted of Excel worksheets with a record for each loan. Each record included the loan number and a number of descriptors of the loan characteristics.

III. THE SAMPLES

6. I constructed two random samples of 400 loans each, separately for the 2005-1 and 2006-2 loan pools. In each case, I constructed a sample using a program based on the random number generator incorporated in the Excel program, re-randomized at each step, and set up to prevent selecting the same loan more than once.

IV. REPRESENTATIVENESS OF THE SAMPLES

7. Just by chance, any random sample runs the risk of not reflecting the overall population distribution of variables of particular relevance. In this instance, the relevant variables are those which are of particular importance to a mortgage loan underwriter. In order to be sure that such an infelicitous accident had not occurred, I compared the sample distributions of these variables with the total population distributions using the chi-squared test.

A. How the Chi-Squared Test Works

8. A chi-squared test starts out by making an initial hypothesis that two distributions are the same except for some random noise in the data. The test then calculates a number (“chi-squared”) based on the observed differences between the distributions being tested. Unless the number exceeds some critical value, the initial assumption is statistically meaningful; or, conversely, the difference between the two distributions is not statistically significant.

9. The critical value depends on the level of confidence that one wants to have in the result. A 95% confidence level means that one wants to be 95% sure that there is a difference which is not merely due to chance.

10. I have used a confidence level of 95%, which is the confidence level most frequently used in statistical testing.

B. Distributions Tested

11. I compared the sample distributions and the total population distributions for a set of important underwriting variables. For these variables, the distributions of the variables in the samples are the same as the distributions of the variables in the populations as a whole at the 95% confidence level.

1. Geographic Distribution

12 I grouped the loans according to the state of the property.

2. Combined Loan to Value Ratio

13. The ratio of home equity loan amount to property value doesn't fully reflect the risk that a default will occur and lead to a loss by the owner of the loan. That risk is better measured by the combined loan to value ratio, i.e., the ratio of *all* the mortgage debt carried by the borrower to the property value. I classified loans into groups using the following combined loan to value ratio ranges:

1. Below 10%
2. 10% to 20%
3. 20% to 30%
4. 30% to 40%
5. 40% to 50%
6. 50% to 60%
7. 60% to 70%
8. 70% to 80%
9. 80% to 90%
10. 90% to 100%
11. Above 100%

3. Borrower Debt to Income Ratio

14. An important determinant of borrower financial stress is the amount of the borrower's income that must be devoted to mortgage and other debt payments. I classified loans into groups using the following debt to income ratio ranges:

1. Below 1%
2. 1% to 10%
3. 10% to 20%
4. 20% to 30%
5. 30% to 40%
6. 40% to 50%
7. 50% to 60%
8. 60% to 70%

9. 70% to 80%
10. 80% to 90%
11. 90% to 100%
12. Above 100%

4. *Current Note Rate*

15. I classified loans into 8 categories based on the note interest rate as follows:

1. Less than 4%
2. 4% to 5%
3. 5% to 6%
4. 6% to 7%
5. 7% to 8%
6. 8% to 9%
7. 9% to 10%
8. More than 10%

5. *Unpaid Loan Balance*

16. I classified loans into 11 categories based on the unpaid balance as follows:

1. Less than \$10,000
2. \$10,000 to \$20,000
3. \$20,000 to \$30,000
4. \$30,000 to \$40,000
5. \$40,000 to \$50,000
6. \$50,000 to \$100,000
7. \$100,000 to \$200,000
8. \$200,000 to \$300,000
9. \$300,000 to \$400,000
10. \$400,000 to \$500,000
11. More than \$500,000

6. *Appraisal Type*

17. Appraisals vary in their stringency. I classified loans into groups according to the following appraisal characteristics (NOTE: the appraisal characteristics provided in the 2005-1 and 2006-2 data differed, as set forth below):

2005-1 loans:

1. 1004 Full Appraisal
2. 1025 (2-4 Unit)

3. 1073 (Condo)
4. 2055 Exterior Only Appraisal
5. 2055 Interior / Exterior Inspection
6. 2065 Exterior Inspection
7. 2075/2070 Property Inspection
8. As is
9. Direct Lending Property Inspection Waiver
10. Form 1044
11. Form 2055 Exterior Only
12. Form 2055 with Interior
13. Form 2065
14. Insured 2055 Exterior
15. Insured AVM
16. Insured Desktop Appraisal
17. Property Inspection Waiver
18. State Equalized Value
19. Streamline Previous Appraisal
20. Subject To Completion
21. Subject To Repairs
22. Unknown

2006-2 loans

1. 1004 Full Appraisal
2. 1025 (2-4 Unit)
3. 1073 (Condo)
4. 1075 Exterior Only Condo
5. 2055 Exterior Only Appraisal
6. 2055 Interior / Exterior Inspection
7. Direct Lending Property Inspection Waiver
8. PIA (Property Inspection Alternative)
9. PIW (Property Inspection Waiver)
10. SEV for HELOC

7. *Borrower Credit Score*

18. The borrower's credit score is one significant consideration in deciding whether to make a loan. I grouped loans into five groups according to the following credit score categories:

1. 600-650
2. 650-700
3. 700-750
4. 750-800

5. 800-850

I had complete data for all the 2005-1 group loans. However, complete data were not available for 474 of the 2006-2 group loans. I had data for 5,112 out of the 5,586 loans in the pool of 2006-2 loans (92%). These data provided complete information on 365 out of the 400 loans in the sample (91%). These data are sufficient to test the typicality of the sample.

C. How the Samples Compare with the Populations

19. The two tables below summarize the statistical properties of the two samples:

2005-1 LOANS						
VARIABLE NUMBER	DESCRIPTION	CHI-SQUARED	DEGREES OF FREEDOM	CONFIDENCE LEVEL	CRITICAL VALUE OF CHI-SQUARED	DISTRIBUTIONS SIGNIFICANTLY DIFFERENT?
1	Geographic Distribution	48.1	47	95%	64.0	NO
2	Combined Loan to Value Ratio	11.4	10	95%	18.3	NO
3	Borrower Debt to Income Ratio	3.8	11	95%	19.7	NO
4	Current Note Rate	0.0	7	95%	14.1	NO
5	Unpaid Loan Balance	2.2	9	95%	16.9	NO
6	Appraisal Type	26.1	21	95%	32.7	NO
7	Borrower Credit Score	5.6	4	95%	9.49	NO

2006-2 LOANS						
VARIABLE NUMBER	DESCRIPTION	CHI-SQUARED	DEGREES OF FREEDOM	CONFIDENCE LEVEL	CRITICAL VALUE OF CHI-SQUARED	DISTRIBUTIONS SIGNIFICANTLY DIFFERENT?
1	Geographic Distribution	48.1	47	95%	64.0	NO
2	Combined Loan to Value Ratio	9.0	9	95%	16.9	NO
3	Borrower Debt to Income Ratio	0.1	7	95%	14.1	NO
4	Current Note Rate	2.5	6	95%	12.6	NO
5	Unpaid Loan Balance	11.1	10	95%	18.3	NO
6	Appraisal Type	2.4	13	95%	22.4	NO
7	Borrower Credit Score	8.2	5	95%	11.1	NO

V. COMMENTS ON THE BURKE DECLARATION

25. On page 4 in paragraph 11, the Burke declaration states that the complexity produced by the presence of and interactions among different variables could have significant implications as it relates to identifying and assessing the existence and materiality of various potential breaches. The declaration restates the same argument on page 6 at paragraphs 16 through 18. This vastly overstates the case. The issue at hand is not some abstruse econometric quantification of how the underwriting process went awry. *It is sufficient to determine Flagstar's contractual obligations were breached.* This is a simple binary choice—either the loan complied with Flagstar's contractual obligations, or it did not. Interactions among variables are irrelevant for this determination.

26. On page 4 in paragraph 13, the Burke declaration states that one textbook on statistical sampling states that statistical sampling provides no help in estimating how far a sample estimate is from the (unknown) population value. This is simply incorrect. If sampling said nothing about population properties, no sampling program, from the U.S. Census Household Survey to industrial quality control procedures, would have any validity. The textbook cited in the declaration is actually devoted to samples which are *not* simple random samples, but are sampled using various weighting schemes dictated by data availability and other factors. The full title of the book is “Statistics for Real Life Sample Surveys - *Non-Simple-Random Samples and Weighted Data.*” (emphasis added) In fact, simple random sampling provides an excellent guide to the population values of parameters, as is recognized by virtually every standard statistics textbook. For example:


“With simple random sampling, the sample mean is an unbiased estimator of the population mean...Also, with simple random sampling, the sample variance is an unbiased estimator of the finite population variance.” Thompson, Steven K., “Sampling - Second Edition,” Wiley, 2002, page 13.

27. On page 7 at paragraph 20, the Burke declaration returns to the issue of the difficulty of determining whether a breach of the representations and warranties contained in the relevant agreements actually occurred, which the declaration raised previously as an introduction to the argument that sampling in this context is almost futile. It is difficult to understand why determining whether or not contractual provisions were or were not breached should be so difficult. Once again, the fact that it is only necessary to make a binary determination - whether Flagstar breached its contractual obligations or not - renders the objections in the Burke declaration irrelevant to the present question.

VI. CONCLUSION

28. The random samples which I constructed provide a sound basis for assessing the degree to which Flagstar failed to meet its contractual obligations.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.



Dr. Nelson R. Lipshutz